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Heart Failure and Cardiomyopathies

PRE-HEART TRANSPLANT ELEVATED GALECTIN-3 LEVELS PREDICT POOR EXERCISE CAPACITY POST TRANSPLANT

Poster Contributions
Poster Hall B1
Saturday, March 14, 2015, 3:45 p.m.-4:30 p.m.

Session Title: Advances in Heart Failure Therapies: From Diuretics to VADs and Transplant
Abstract Category: 14. Heart Failure and Cardiomyopathies: Clinical
Presentation Number: 1146-229

Authors: *Avishay Grupper, Jose Nativi, Sudhir Kushwaha, Joseph Maleszewski, Jennifer Geske, Walter K. Kremers, Brooks Edwards, Naveen Pereira, Mayo Clinic, Rochester, MN, USA*

Background: Galectin (Gal) -3 is a novel biomarker which reflects cardiac remodeling and fibrosis. Elevated Gal-3 levels are associated with poor prognosis in patients with heart failure (HF). The significance of pre-heart transplant (HTx) Gal-3 levels on post-HTx outcomes is unknown.

Methods: Serum Gal-3 levels were measured 263 ± 346 days before HTx in 62 patients who underwent heart alone (50), heart-kidney (6) and heart-liver (6) transplant using an enzyme linked immunosorbent assay. Clinical, echocardiographic and exercise parameters were collected pre and post-HTx. Association of Gal-3 levels and cardiac allograft rejection, coronary allograft vasculopathy (CAV) and patient survival was evaluated.

Results: Pre-HTx Gal-3 levels were elevated (≥17.8 mg/dl) in 35 (56%) patients and the prevalence of females was higher in this group compared to the group with lower levels (37% vs. 7%, p=0.007). Patients with elevated Gal-3 levels had lower GFR pre-HTx (58 vs. 72 mL/min/1.73 m², p=0.007) and more significant diastolic dysfunction assessed by E/e' ratio (23 vs. 17, p=0.018) without a significant difference in ventricular size or ejection fraction. Gal-3 levels didn't correlate with other HF biomarkers [NT pro-BNP (2885 ± 2550) and ST2 (50 ± 48)]. Mean follow up post-HTx was 81 ± 34 months. Post-HTx, patients with elevated pre-HTx Gal-3 levels had significantly worse exercise capacity as assessed by peak oxygen consumption (VO2) during cardiopulmonary exercise testing at both 2 and 3 years post-HTx (17 vs. 23 ml/Kg/min, p=0.004 and 17 vs. 24 ml/Kg/min, p=0.001, respectively). In addition, patients with elevated Gal-3 levels pre-HTx also had lower GFR 3 years post-HTx (61 vs. 79 mL/min/1.73 m², p= 0.025). There was no association between pre-HTx Gal-3 levels and post-HTx survival, CAV, and acute cellular and antibody mediated rejection.

Conclusion: Elevated Pre-HTx serum Gal-3 level in end-stage HF patients is associated with poor exercise capacity and worse renal dysfunction post-HTx. Our study for the first time implicates Gal-3 role in the pathophysiology of these post-HTx complications, and whether treatment to lower Gal-3 will improve these post-HTx outcomes remains to be explored.